Pre Ph.D. Synopsis

Title of research proposal

"Studies On Aquatic Fauna of Wetlands of Telghana Ambejogai, Dist Beed, Maharashtra"

Pre Ph.D. Synopsis of the proposed research plan

Submitted to

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

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DEGREE IN ZOOLOGY

UNDER THE

FACULTY OF SCIENCE & TECHNOLOGY

Submitted by

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Title : Studies On Aquatic Fauna of Wetlands of Telghana Ambejogai, Dist Beed, Maharashtra

INTRODUCTION-

Wetlands perform a variety of unique physical, chemical and biological functions which are essential to the health of the environment and valuable to society. They are complex and fascinating ecosystems performing a variety of functions of vital importance to the environment and to the society whose very existence depends on the quality of the environment. Ramsar Convention, the first World Convention on Wetlands (1971), defines wetlands as "Wetlands are areas of marsh, fern, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six meters." Wetlands are considered among the most biologically diverse of all ecosystems,

Serving as home to a wide range of plant and animal species. Methods for assessing wetland functions, wetland ecological health, and general wetland condition have been developed for many regions of the world.

Our knowledge of Earth's ecosystems and biodiversity is growing at rates that exceed our ability to accurately predict regional species pools. Recent estimates of Earth's biodiversity suggest that the planet boasts a total of 8.7 million species, 87% of which are yet to be described. Yet while our comprehension of the magnitude and appreciation of species diversity grows, many have suggested we are currently within the Earth's six mass extinction event , in which rates of species loss are unprecedented compared to past extinction events. Indeed, cataloguing biodiversity is a catalyst for global conservation efforts.

The International Union for the Conservation of Nature (IUCN) has assessed over 77,300 species, of which 29,530 (38%) are classified as threatened, endangered, or critically endangered, and >10,000 more (13%) species listed as vulnerable. While only 0.01% of Earth's surface water occurs in rivers, lakes, and swamps, >126,000 (7%) of the Earth's described species are found in freshwaters. Therefore, freshwater species especially are in serious jeopardy of extinction.

Wetlands are considered as one of the significant ecosystems of the globe. They are termed as "Biological supermarkets." for their role in supporting extensive food webs and rich biodiversity. A wetland ecosystem encompasses both aquatic and terrestrial conditions which makes them among the most complex ecosystems of the world. As ecotones, wetlands are

embraces various habitats and numerous microhabitats, each one holding atypical, complex, and rich communities.

Wetlands are exposed to ecological and topographical gradients, which affect the distribution patterns and zonation of fauna and vegetation. In both inland and coastal wetlands, a gradient exists between almost truly terrestrial sites to permanently flooded plateaus. As a result soil infauna, microbenthic fauna with limited mobility, and vegetation are distributed according to the topographical features determining the gradient itself. Also the environmental features of wetlands are determined largely by hydrologic processes that may fluctuate daily or seasonally in relation to regional climate and geographic conditions. All these factors led to great variety of wetland types globally. Wetlands are broadly classified into five categories i.e., estuarine, marine, riverine, palustrine and lacustrine (Cowardin et.al. 1979, 1992) with recent classification including man-made wetlands. Due to wide range of variety amongst wetland types, the variety of living organisms inhabiting and adapted to the different wetlands tends to be high comprising major taxonomic groups of plants and animals. The wetland areas are a habitat for hundreds of avian species, both resident as well as migratory. 1340 species of bird reported in India out of which in and around 310 species of birds depend on the wetland areas. (M. muragesan et.al…2013)

Beed district is located almost at the center of the State of Maharashtra and lies between 180 32’ to 190 26’ North latitudes and 740 48’ to 760 44’ East longitudes covering an area of about 10693 km2. It is bounded by Aurangabad and Jalna districts on the east by Parbhani and Latur districts, on the south by Osmanabad and Ahmadnagar and on the west by Ahmadnagar district of Maharashtra State.

The district is divided into 11 administrative sub-units (i.e. tehsils) viz., Beed, Gevrai, Malegaon, Ambejogai, Kaij, Patoda, Shirur-Kasar, Dharur, Wadwani, Parli and Ashti. There are 6 towns and 1365 villages in the district as per the 2001 census. According to the 2001 census, the total population of Beed district is 2161250. Rivers/ streams contribute to 23.79% of the total wetland area. The reservoir/barrages are the biggest contributor to the wetland area with 12630 ha i.e. 39.82 % .The tanks/ponds contribute to 10728 ha i.e. 33.82 %. The total area under wetland is 31718 ha with the water bodies less than the minimum mappable unit contributing to 780 ha to the wetland area. Aquatic vegetation is seen in both the pre- monsoon and post monsoon season. Turbidity levels ranging from low to moderate to high are seen both

during the pre-monsoon and post –monsoon period. The high sedimentation can be seen due to the location of many water bodies along the ridge line.

Telghana Wetland is situated near Ambajogai Dist. Beed. This was made in 1974-1977.Area of this wetland is 20 Acre (8He), 50 Ft depth. In this area rainfall in less quantity sometimes there was no water for cattles, farming and other living organisms. So this purpose there was making a wetland. Various water bodies and living organisms are depend on this wetland.

REVIEW OF LITERATURE-

Chavan and et.al. (2004) have contributed for the study of water quality of Manjara project reservoir, Beed, Mharashtra. Guruswami and Ramdoss (2000) have studied seasonal variations in Chlorophyll and phytoplankton productivity in man-made reservoirs. Chogale, et al. (2020) checked the resent status of wetlands biodiversity of village Acton- Devtalav, Vasai and reported check list comprising 33 insect, 32 aves, 9 reptiles, 6 pisces and 3 arachnids in the study area in poster. Kamlbe et. al (2020) reported 114 plants species with 33 families have been identified from the Wetland area of Gorewada International Biopark, Nagpur, India Sakhare and Jetihor (2021) investigated and reported the occurrence of 7 species of copepods from Seasonal Wetland in Ambajogai of Beed District, Maharashtra, India.

Abdar R. (2016) recorded Avifauna 32 species of Wetland birds belonging to 6 orders and 15 families were recorded during Oct, 2014 and Jan, 2015 from Wetland from Water Reservoir of Welturi Project Tah. Ashti , Dist. Beed (M.S) India.. The relationship between biodiversity and wetland cover varies across regions of the conterminous United States. The results highlight the need for wetland conservation initiatives that focus efforts at the level II and III ecoregional scale rather than along political boundaries. Qu et al. J. 2019.Identifying restoration priorities for wetlands based on historical distributions of biodiversity features and restoration suitability Karikar Shraddha1*, Mali Subhash Kulkarni Prasad Department of Environmental Science, Savitribai Phule Pune University, Pune Status of Wetland birds at associated lakes of Ujjani Reservoir, Maharashtra, India.

Objectives of Research

1. To review of related literature.
2. Collection & identification of Fauna.
3. To prepare an inventory and management plan for wetland conservation.
4. To develop an ability to understand issues related to best practices in wetland management and biodiversity conservation
5. To preserve the diversity of species.
6. Sustainable utilization of species and ecosystem.
7. To maintain life-supporting systems and essential ecological processes.
8. To mitigate the effect of natural disasters like cyclone & tidal waves.
9. To regulate water quantity, groundwater recharge & can contribute to regulating floods & the impact of storms.

MATERIAL AND METHODS-

Beed district is located almost at the centre of the State of Maharashtra and lies between 180 32’ to 190 26’ North latitudes and 740 48’ to 760 44’ East longitudes covering an area of about 10693 km2 . It is bounded by Aurangabad and Jalna districts on the east by Parbhani and Latur districts, on the south by Osmanabad and Ahmadnagar and on the west by Ahmadnagar district of Maharashtra State.

The district is divided into 11 administrative sub-units (i.e. tehsils) viz., Beed, Gevrai, Majalgaon, Ambejogai, Kaij, Patoda, Shirur-Kasar, Dharur, Wadwani, Parli and Ashti. There are 6 towns and 1365 villages in the district as per the 2001 census. According to the 2001 census, the total population of Beed district is 2161250. Rivers/ streams contribute to 23.79% of the total wetland area. The reservoir/barrages are the biggest contributor to the wetland area with 12630 ha i.e. 39.82 % .The tanks/ponds contribute to 10728 ha i.e. 33.82 %. The total area under wetland is 31718 ha with the water bodies less than the minimum mappable unit contributing to 780 ha to the wetland area. Aquatic vegetation is seen in both the pre- monsoon and post monsoon season. Turbidity levels ranging from low to moderate to high are seen both during the pre-monsoon and post –monsoon period. The high sedimentation can be seen due to the location of many water bodies along the ridge line.

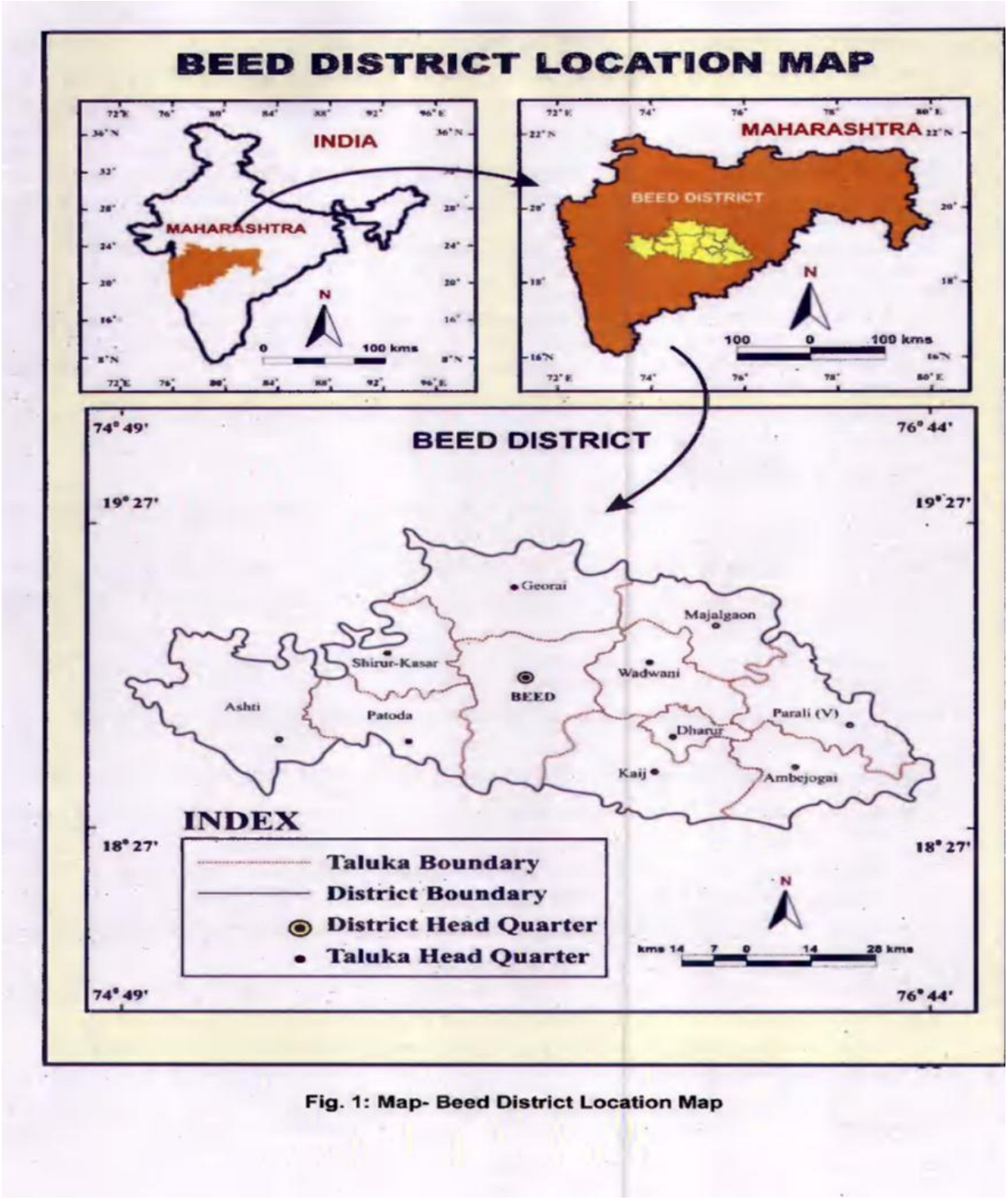

Fig. 1: Map- Beed District Location Map

Study Area: Telghana Wetland Tq. Ambajogai Dist. Beed Maharashtra

Telghana Wetland is situated near Ambajogai Dist. Beed in Maharashtra. This was created in 1974- 1977 as per local people. Area of this wetland is 20Acre (8He), 50 Ft is the depth. In this area rainfall is very scanty sometimes there was no water for cattles, farming and other living organisms. So this purpose there was making wetland. Various water bodies and living organisms are depend on this.

Fig. GPS Tagged Photographs of Study Area

(Telghana Wetland Tq. Ambajogai Dist. Beed Maharashtra.)

PROCEDURE OF DATA COLLECTION

The data will be collected through questionnaire, observation and interview techniques. The researcher will also use the essential statistical techniques to analyze and interpret the data.

DATA ANALYSIS

After collecting the data from the respondents by using various tools, the researcher goes for the data analysis with appropriate statistical techniques. By using these techniques the researcher will investigate the impact of folklore use of plants in relation to service of mankind, particularly in the treatment of ailments.

STATISTICAL TECHNIQUE

Statistical techniques like Annova, Students T test, Chi2 test will be used level of significance in relation to usefulness of folklore medicinal plants.

Thesis writing and Submission.

Scientific writing of thesis will be done for final PhD Thesis submission to SRTM University.

Importance of the Study

International

For the environment as well as human's daily usage. The importance of aquatic animals comes from the fact that they are organisms that provide humans with sources such as food, medicine, energy shelter, and raw materials that are used for daily life.

National

Today, aquatic animals are the main source of protein for billions of people worldwide, and demand is expected to increase. To satisfy this demand, aquatic animal production will need to double by 2050, with most of this growth coming from aquaculture.

Regional Status and Scope of the Study

The ecological Biodiversity is the number of species in the community of organisms, which are important for human welfare. The status of wetland biodiversity is at an extreme risk due to major environmental threats. Wetland species are threatened and endangered; some of the species have totally disappeared in the wetland ecosystem. This will be very first time investigation on Biodiversity of Telghana wetland from Ambejogai Dist. Beed in Maharashtra. We will try developing research Strategies and suggesting public policies through our research findings to government, which will help us in conserving the wetland biodiversity. The ocean produces at least 50% of the planet's oxygen, it is home to most of earth's biodiversity, and is the main source of protein for more than a billion people around the world. Furthermore, the ocean is key to our economy with an estimated 40 million people being employed by ocean-based industries by 2030. 8 Jun 2021.

Proposed work Plan/ Formulation and Structure of Study: Year-wise Plan of work and targets to be achieved

Sr. No.	Year	Activity	Tentative Duration
1)	**Ist Year**	➢ Completion of the coursework ➢ Review of literature ➢ Identification the problem ➢ Finalization of the research problem statement ➢ Formulation of the objectives, hypotheses and methodology ➢ Course work for research awareness and to enhance research knowledge. ➢ Respect to concept and knowledge.	**12 Months**

		➢ To study the habitat ecology of study area. ➢ Study the population dynamics of fauna in wetland of Telghana Wetland Tq. Ambajogai Dist. Beed Maharashtra ➢ Study the taxonomy of biodiversity in region of Telghana Wetland Tq. Ambajogai Dist. Beed Maharashtra.	
2)	**IInd Year**	➢ Tool preparation (Validity & Reliability) of the tool ➢ Pilot study ➢ Obtain permission from the authorities and the subjects ➢ Data collection ➢ Study the species fauna in wetland of Telghana Wetland Tq. Ambajogai Dist. Beed Maharashtra ➢ Study of seasonal variation of fauna of study area. ➢ Analyzing the data and interpretation of study findings. ➢ Summary preparation ➢ Submission of summary	**12 Months**
3)	**IIIrd Year**	➢ Conference proceedings ➢ Paper publications ➢ Paper presentations ➢ Writing the thesis ➢ Submission of thesis	**12 Months**

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